Water Resources Research Lab

LABORATORY MODEL CANAL

The model canal in the Water Resources Research Laboratory is a permanent facility that is used for development, testing, and training. *Canal Automation* is becoming widely used to improve the operation of canal systems and to conserve water. Most new canals have an automatic control system. Additionally, many older canals are being modernized with data collection, telemetry, and control equipment that helps canal operators to better manage their water. This model canal facility has many of the modern control features being used on real canals.

MODEL FEATURES:

- 300-foot-long channel made from Plexiglas and aluminum
- 5 canal reaches (or pools)
- 5 motorized control gates
- 4 gated turnouts
- long-throated flume (ramp flume) for canal flow measurement
- inverted siphon pipe with adjustable head loss
- variable-speed pump and pipe flow meter for inflow control
- 600-gallon, elevated head tank
- full instrumentation for remote monitoring and control of water levels, gate positions, and flows
- computer control from the central control platform

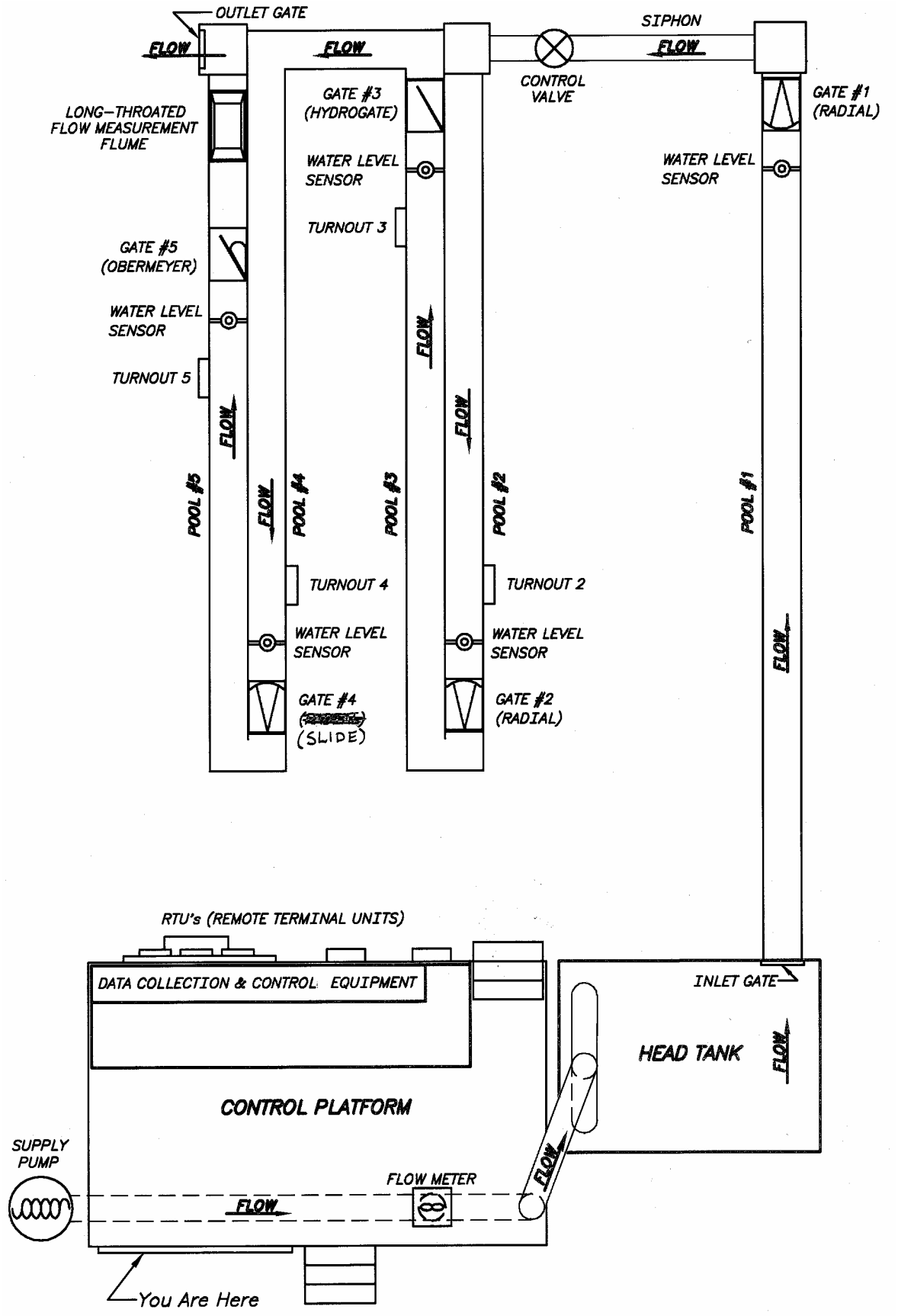
PURPOSE:

Research and development. - This model is used to evaluate different canal operating methods and to develop control software that improves water delivery efficiency.

Testing. - Various types of data collection and control equipment are installed and tested for potential application on operating canals.

Demonstration. - Reclamation engineers use this model canal to demonstrate hydraulic principles, canal and gate operating techniques, hydraulic performance of control structures, and various automatic control methods.

Training. - A week-long course has been developed to train canal operators, engineers, and managers in modern methods of canal operation and control. This course covers methods to upgrade the operations of existing canals using canal automation techniques and equipment, with "hands-on" workshop sessions that use this model canal facility.


OUTLET GATE
FLOW
FLOW
SIPHON
FLOW
CONTROL VALVE
GATE #1 (RADIAL)
LONG-THROATED FLOW MEASUREMENT FLUME
GATE #3 (HYDROGATE)
WATER LEVEL SENSOR
WATER LEVEL SENSOR
TURNOUT 3
GATE #5 (OBERMEYER)
WATER LEVEL SENSOR
TURNOUT 5
FLOW
FLOW
FLOW
POOL #5
FLOW
POOL #4
POOL #3
POOL #2
POOL #1
TURNOUT 4
TURNOUT 2
WATER LEVEL SENSOR
WATER LEVEL SENSOR
FLOW
GATE #4 (SLIDE)
GATE #2 (RADIAL)
RTU's (REMOTE TERMINAL UNITS)
DATA COLLECTION & CONTROL EQUIPMENT
INLET GATE
HEAD TANK
FLOW
CONTROL PLATFORM
SUPPLY PUMP
FLOW METER
FLOW
FLOW
You Are Here